## DEPARTMENT of ENVIRONMENTAL SERVICES Water Supply & Pollution Control Division - Biology Bureau

#### LAKE TROPHIC DATA

#### MORPHOMETRIC:

Lake: LONG POND		Lake Area (ha):	11.45
Town: MANCHEST	ER	Maximum depth (m):	4.6
County: Hillsbor	ough	Mean depth (m):	2.4
River Basin: Merrimac	k	Volume (m³):	272000
Latitude: 42°57'13	3" N	Relative depth:	1.2
Longitude: 71°22'55	5'' W	Shore configuration:	1.50
Elevation (ft):	255	Areal water load (m/yr)	: 4.89
Shore length (m):	1800	Flushing rate $(yr^{-1})$ :	2.10
Watershed area (ha):	119.1	P retention coeff.:	0.66
<pre>% watershed ponded:</pre>	0.0	Lake type: natura	l w/dam

BIOLOGICAL:	17 February 1998	14 August 1997
DOM. PHYTOPLANKTON (% TOTAL) #1	DINOBRYON 35%	ASTERIONELLA 45%
#2	UROGLENOPSIS 35%	MERISMOPEDIA 30%
#3	ASTERIONELLA 20%	
PHYTOPLANKTON ABUNDANCE (units/mL)		
CHLOROPHYLL-A (µg/L)		19.81
DOM. ZOOPLANKTON (% TOTAL) #1	KERATELLA 36%	GASTROPUS 11%
#2	LRG RND CILIATE SPP 33%	DAPHNIA 11%
#3		
ROTIFERS/LITER	153	62
MICROCRUSTACEA/LITER	32	40
ZOOPLANKTON ABUNDANCE (#/L)	335	116
VASCULAR PLANT ABUNDANCE		Common
SECCHI DISK TRANSPARENCY (m)		1.3
BOTTOM DISSOLVED OXYGEN (mg/L)	5.1	0.6
BACTERIA (E. coli, #/100 ml) #1		2
#2		
#3		

#### SUMMER THERMAL STRATIFICATION:

#### stratified

Depth of thermocline (m): 2.6 Hypolimnion volume  $(m^3)$ : None Anoxic volume  $(m^3)$ : 43500

CHEMICAL:			LONG PONI		
	17 Febru	lary 1998	14 7	August 199	97
DEPTH (m)	1.5	3.0	1.0		3.0
pH (units)	5.6	5.6	6.4		5.9
A.N.C. (Alkalinity)	3.2	3.5	3.4		5.0
NITRATE NITROGEN	< 0.05	< 0.05	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.40	0.40	0.60		0.60
TOTAL PHOSPHORUS	0.015	0.014	0.014		0.015
CONDUCTIVITY (µmhos/cm)	41.1	41.1	29.6		33.1
APPARENT COLOR (cpu)	90	90	85		140
MAGNESIUM			0.54		
CALCIUM			2.6		
SODIUM			1.9		
POTASSIUM			0.22		
CHLORIDE	2	2	2		2
SULFATE	8	. 8	5		4
TN : TP	27	29	43		40
CALCITE SATURATION INDEX			4.0		

All results in mg/L unless indicated otherwise

#### TROPHIC CLASSIFICATION: 1997

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
**	4	3	4	11	Eutro.

#### COMMENTS:

- Long Pond was previously surveyed in 1981 and was classified as eutrophic at that time also.
   There was little change in water quality between the two dates except for the summer surface pH which was only 5.8 in 1981.
- 2. This is a productive, dark tea-colored, moderately acidic pond.
- 3. Camp Carpenter, a Boy Scout Camp, was located on the pond. No other cottages were present.
- 4. No water was flowing out the outlet at the time of the summer sampling.

# Long Pond Manchester 5 5 foot depth contours 10 15 10 0.2 0 Km

#### FIELD DATA SHEET

LAKE: LONG POND

DATE: 08/14/97

TOWN: MANCHESTER

WEATHER: SUNNY, CLEAR & BREEZY

DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
0.1	23.5	7.2	84 %
1.0	23.5	7.1	83 %
2.0	23.3	7.1	83 %
3.0	16.4	0.4	4 %
4.0	13.4	0.6	6 %
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SECCHI DISK (m): 1.3

BOTTOM DEPTH (m): 4.5

TIME: 1200

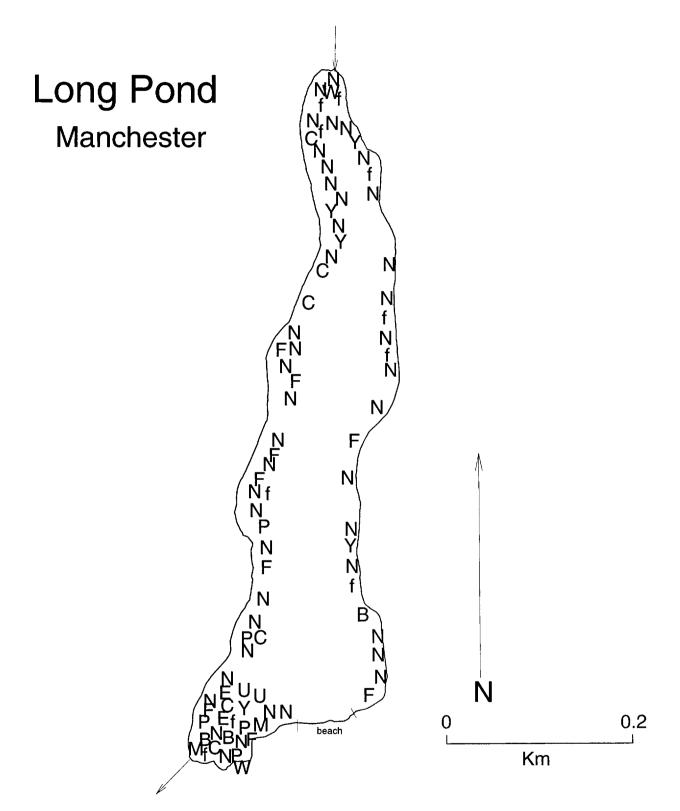
COMMENTS:

This pond was stratified but was too shallow for a hypolimnion to

develop. Essentially all the metalimnion below the thermocline

was anoxic.

\*Dissolved oxygen values are in mg/L



### AQUATIC PLANT SURVEY

LAK	E: LONG POND	TOWN: MANCHESTER	DATE: 08/14/97
ζеу		PLANT NAME	ABUNDANCE
еу	GENERIC	COMMON	ADONDANCE
Е	Eriocaulon septangulare	Pipewort	Sparse
F	Nymphoides cordatum	Floating heart	Scattered
N	Nymphaea	White water lily	Common
P	Pontederia cordata	Pickerelweed	Scattered
В	Brasenia schreberi	Water shield	Sparse
С	Cyperaceae	Non-flowering sedge	Scattered
M	Myriophyllum humile	Water milfoil	Sparse
f	Chlorophyceae	Filamentous green alg	ae Common
W	Potamogeton	Pondweed	Sparse
Y	Nuphar	Yellow water lily	Scattered
U	Utricularia	Bladderwort	Sparse
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OVERALL ABUNDANCE: Common

#### **GENERAL OBSERVATIONS:**

- 1. Plants were common around most of the shoreline.
- 2. Interestingly, the zooplankton were more abundant in the winter than the summer.